

# Carbon Capture and Sequestration in the United States



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**The United States has adopted federal regulations governing the geologic sequestration of CO<sub>2</sub> and is continuing investment in carbon capture and sequestration (“CCS”) research and development. Many State laws to clarify pore space ownership and otherwise facilitate CCS have been enacted. But in the absence of federal greenhouse gas (“GHG”) limitations, the main driver behind CCS is the opportunity for enhanced oil recovery (“EOR”).**

### **Economics Driving CCS Development**

In 2012, the engine driving CCS development and deployment in the United States is primarily an economic one, not a policy one.

Of the seven large scale power plants under construction in the U.S. at which carbon capture is planned, six will use some or all of the captured CO<sub>2</sub> for enhanced oil recovery (EOR). Sale of the CO<sub>2</sub> for this economic use will help offset the costs of CO<sub>2</sub> capture. The same is true in Canada, where all three planned major power plant CCS projects will involve EOR. By contrast, only four of the eight major CCS projects under development in the European Union are expected to use the captured gas for EOR or enhanced gas recovery.

In the U.S. and elsewhere, the acronym is thus evolving to “CCUS” - carbon capture, *use*, and sequestration.

### **U.S. Policy and CCS**

Some observers of the U.S. policy arena have assumed there would be decreasing activity on CCS as a result of divided party control of the U.S. Congress and the concomitant unlikelihood of climate change legislation passing in 2012 and probably beyond. The numbers above show that industry is investing in CCS in America where it is economically justified.

But the influence of policy in the U.S. should not be underestimated. Even without federal legislation mandating greenhouse gas reductions, GHG-related policy developments will have a significant impact on business decisions:

- Numerous States have adopted GHG reduction targets or binding restrictions. Some of these have been regional in nature, such as the Regional Greenhouse Gas Initiative, through which a number of Northeastern States joined together to cap and reduce GHG emissions from the power sector by 10 percent by 2018. A number of States have also adopted GHG limitations on an individual basis.
- The U.S. Environmental Protection Agency (EPA) is under a court-ordered settlement agreement to propose and finalize a New Source Performance Standard (NSPS) for fossil-fueled electric generating facilities. This restriction to GHG emissions would apply to new electric generating facilities. Most expect that the standard for new facilities will be set at the GHG emission rate for a natural gas combustion turbine, which would mean that any U.S. coal-fired power plant built after this rule would need to capture carbon.
- The NSPS also will apply to “modified” facilities. Hundreds of coal-fired power plants likely will have to be modified within the next few years to comply with tightening federal requirements on non-GHG air emissions and water use. It is possible that the NSPS, which has not yet been proposed, could have broad applicability to existing power plants, depending on how it is written.
- In 2010, EPA issued the so-called PSD Tailoring rule to require permits for new facilities that emit more than 25,000 tons per year CO<sub>2</sub>e annually, or for existing facilities that increase their annual CO<sub>2</sub>e by as little as 10,000 tpy. This regulation was put in place under a provision of the Clean Air Act intended to prevent significant deterioration of air quality.

The U.S. has put in place a federal regulatory structure addressing environmental concerns related to CCS. The federal Safe Drinking Water Act sets requirements to protect drinking water, including groundwater, from contamination. One part of the Act regulates underground injections to prevent endangerment of groundwater. Under the Act's Underground Injection Control (UIC) program, the EPA finalized in late 2010 a regulatory framework (Class VI) that specifically applies to geologic sequestration wells. Industry has expressed a number of concerns that the new Class VI requirements are too stringent and may deter geologic sequestration. Note that CO<sub>2</sub> used for enhanced oil recovery is subject to less restrictive standards (Class II) applicable to oil and gas wells.

States may administer the UIC program in lieu of the EPA if the EPA approves. For Class VI sequestration wells, EPA announced in the fall of 2011 that it will serve as the permitting agency for each State until EPA approves the State to run the program.

Another key factor for CCS development in the US and elsewhere in North America will be the low price of natural gas. A significant portion of the existing US coal-fired generation fleet is likely to shut down within the next few years, particularly older and smaller facilities at which it will not be cost effective to install pollution controls to comply with new non-GHG EPA regulations. Predictions that low natural gas prices will persist will influence the decisions power generators make in the next several years in replacing the capacity that shuts down.

**Additional Resources:** Hunton & Williams has been involved with the legal issues surrounding CCS since its inception. We advise US and non-US companies on the full range of issues relevant to CCS. Our work includes efforts to shape federal and State policies related to CCS, pipeline policy and permitting work, and financing, permitting, and rate recovery related to specific power generation projects. The firm founded and serves as legal counsel to the CCS Alliance ([www.ccsalliance.net](http://www.ccsalliance.net)), a multi-industry policy group whose mission is to promote development of positions and policy by the private sector, states, the federal government, nongovernmental organizations, and others to appropriately address risks associated with the development and deployment of CCS technologies.

The firm is recognized by *Chambers* 2011 as one of the leading U.S. law firms in the environmental and regulatory areas, and was named the Environmental Practice of the Year by Law360 for 2011 and 2012. If you have any questions about our work related to CCS or how we can help, please contact us.

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